



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

Mr. Vernon C Burrows
Remediation Specialist Sr II
BASF Corporation
100 Park Avenue
Florham Park, NJ 07932

April 4, 2013

OVERNIGHT MAIL

Re: BASF RCRA Phase II RFI Report
Huntington, West Virginia facility

Dear Mr. Burrows:

EPA has completed its review of the May 14, 2010 RCRA Facility Investigation Phase II report. BASF should address the following comments.

1. Section 1.2, RFI Phase II Objective: In addition to human health endpoints, all Corrective Action sites should be evaluated for the potential for impacts on ecological receptors. The initial step in this process is determination of whether areas of sustainable habitat are present on the facility. This evaluation must be performed by a qualified wildlife biologist.
2. Section 1.2, RFI Phase II Objective: WVDEP DeMinimis Standards for Industrial Soils and DeMinimis Standards for Groundwater are not universally equivalent to or lower than EPA Risk Screening Levels (RSLs). EPA industrial RSLs, for example, are based on a cancer risk of 1×10^{-6} , not 1×10^{-5} as are the WVDEP DeMinimis standards. Therefore, sample results should be compared to the lower of the WV or EPA screening concentrations.
3. Section 2.2, Background Arsenic Concentrations: Page 2-61 of the WV Voluntary Remediation and Redevelopment Act guidance manual lists an average background arsenic concentration of 8.64 mg/kg, with a maximum value of 13 mg/kg, slightly lower than the upper range cited in this section. Please revise this section.
4. Section 2.7, Surrounding Land Use: It appears that residential properties are directly adjacent to the facility on two sides; the Homestead Court properties located east of the parking lot, and homes across 4th Avenue, to the north of the facility property. Please revise this section.

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5. Section 2.8, Regional Water Use: The results of the well search, which documented an absence of wells within one mile of the facility, has been confirmed by EPA. Although the groundwater drinking water pathway is not complete, cleanup of the groundwater to MCLs should still be a groundwater cleanup goal.
6. Section 3.1.1 25th Street Landfill History - Reference is made to various historic air photos that were reviewed to evaluate the limits and history of the landfill. Please provide copies (preferably scanned electronic versions) of these aerial photos (unless already provided in previous documents).
7. Section 3.2.3, RFI Phase I Investigation Results: Results in this section are described only as below WV DeMinimis industrial screening concentrations (but exceeding EPA RSLs), and this information is insufficient to assess whether the contaminated soil may represent a source area for groundwater contamination, or whether contamination present above EPA RSLs would prevent attainment of the EPA Environmental Indicator for human health. Furthermore, the WV DeMinimis screening concentration for industrial receptors for TCE is 0.92 mg/kg, while the current EPA RSL for industrial endpoints for TCE is 6.4 mg/kg, which is higher than the WV value.
8. Section 3.4.3, RFI Phase I Investigation Results: The presence of PCBs, regardless of concentration, in a sample that is directly associated with a 50 ppm PCB transformer is cause for action pursuant to the TSCA statute. The status of the associated transformer (50 ppm or not) needs to be established, and the presence of Aroclor 1254 in sample AOC7-07 may warrant further action.
9. Section 3.6.3, RFI Phase I Investigation Results, fifth bullet: The extent of contamination plumes associated with TMW-1D and the 25th Street Landfill has not been established. Well TMW-12D, which is located off the facility property and is the farthest downgradient monitoring well, reveals higher concentrations of cis-1,2-dichloroethene, vinyl chloride, and 1,1-dichloroethene than the most recent sample data from well TMW-1D. In the case of the 25th Street Landfill, the most heavily contaminated wells are also the farthest downgradient wells, suggesting that the plume may extend some yet undefined distance off the site property. Insufficient information is presented in the Phase II report to support the assumption of reductive dechlorination. No discussion of how chlorinated VOCs might have reached groundwater at the site is included in the Phase II report. It could be argued that the source of the chlorinated VOC contamination has not yet been discovered.
10. Section 3.6.3, RFI Phase I Investigation Results, seventh bullet: No information supporting the claim of low constituent transport velocity for semivolatile contaminants based on a site-specific retardation factor is included in the Phase II report. A complete supporting discussion or reference to specific sections of prior submittals should be included in the Phase II report.
11. Section 3.6.3, RFI Phase I Investigation Results, eighth bullet: Current EPA policy recommends that potential vapor intrusion threats not be ruled out by modeling alone.

recommends that potential vapor intrusion threats not be ruled out by modeling alone. Given the proximity of apparent residential areas directly east and north of the facility, as well as concentrations of chlorinated VOCs measured in monitoring wells TMW-1D and TMW-12D and in well points beneath the parking lot, additional information is needed to determine whether a vapor intrusion threat to residents exists. This work may consist of subslab vapor samples, indoor air samples, or deep soil gas samples. It is further noted that the only groundwater samples from the northern downgradient border of the site are described as deep monitoring well samples. BASF should address the possibility that contaminated groundwater may be present above this deep groundwater layer because contaminated shallow groundwater is a better predictor of the potential for vapor intrusion.

12. Section 3.7, Summary of Initial RFI Conclusions and Recommendations, first bullet: As noted previously, the possible extent of contaminated groundwater in two directions, east and north, has not been determined, and contaminated groundwater is documented off the site property in the northerly direction and may extend off site in the easterly direction. The groundwater migration under control Environmental Indicator is therefore in question. The contaminant reduction trends cited in the Phase II report are based on single sample results in some cases, notably, wells TMW-7D, TMW-5D, TMW-12D, TMW-11S. A single sample result does not establish a verifiable trend. Wells TMW-4S and TMW-11S show higher results for most or all detected VOCs and SVOCs in 2009 than in 2005. In addition, the generally higher chlorinated VOC concentrations reported in well point samples obtained beneath the parking lot suggest that contaminated groundwater may extend off the site property beneath residences located directly adjacent to this area. Additional information is needed to definitively establish the extent of contaminated groundwater at this site.
13. Section 3.7, Summary of Initial RFI Conclusions and Recommendations, second bullet: The 2009 sample from well TMW-4S showed higher concentrations of all notable contaminants. Therefore, additional rounds of data would be required to definitively establish a downward trend in this well.
14. Section 3.7, Summary of Initial RFI Conclusions and Recommendations, third and fourth bullets: As previously noted, no data supporting transport velocities, site-specific retardation factors, and the lack of potable use of groundwater is included in the Phase II report. Review of prior reports where such documentation is included or independent submission of supporting information is required for concurrence with these conclusions in the Phase II report. Furthermore, as noted in comment no. 11, a conclusion of no vapor intrusion risk cannot be made without additional information.
15. Section 5.1.4, Conclusion and Recommendations: The source for groundwater VOC contamination in the vicinity of the parking lot has not been established, and soil samples from this area should be considered as part of the next phase of work.
16. Section 5.1.4, Conclusion and Recommendations, first bullet: Additional sampling in the vicinity of sample AOC2-04 should also include VOCs, since the results for the entire

VOC fraction of the 2009 sample were flagged "R" (unusable).

17. Section 5.1.4, Conclusion and Recommendations, third bullet: Additional sampling in the vicinity of sample AOC2-18 should also include SVOCs, since the entire SVOC fraction of the 2009 sample revealed significantly elevated quantitation limits.
18. Section 5.3.3, Soil Investigation Results: It is noted that on Table 25 the result for o-toluidine in sample AOC6-10 of 13 mg/kg is compared to an EPA RSL for industrial soil of 9.6 mg/kg. However, there is no RSL for o-toluidine, and a related compound, p-toluidine reveals an industrial RSL of 2.6 mg/kg. This exceedance of the EPA RSL may indicate the need for additional sample data in the vicinity of AOC6-10.
19. Section 5.3.4, Conclusion and Recommendations: In addition to the proposed soil investigation for aniline, investigation of potential impacts of the aniline spill referred to in section 4.1 is integral to a final site disposition.
20. Section 6.2, Groundwater Results July 2009, and 6.3, Discussion of Groundwater Results: Comments nos. 9, 10, 11 and 12, above, also apply to this section.
21. Section 6.3, Discussion of Groundwater Results, second bullet: As a result of the elevated turbidity level and notable arsenic concentration reported, resampling of this well should be considered.
22. Section 6.3.1, Nature and Extent of Contamination: As noted previously, the extent of groundwater contamination in the northern and eastern directions from the site boundary has not been established. Trends supporting a pattern of reduction in VOC contamination in certain wells cannot be established based on results from one round of data. The absence of chlorinated VOCs in well nos. TMW-6D and TMW-8D do not confirm an assertion of limited extent of groundwater VOC contamination beneath the 25th Street Landfill, since these wells are not downgradient of contaminated well nos. TMW-5D and TMW-7D. Additional monitoring wells are needed to determine the extent of groundwater contamination for the 25th Street Landfill, and possibly for the northern groundwater VOC plume.
23. Section 6.3.2, Contaminant Fate and Transport, and 6.4, Conclusion and Recommendation: Comment nos. 9, 10, 11 and 12, above, also apply to this section.
24. Section 7.0 Conclusions and Recommendations - This section proposes additional soil investigation in several areas to complete the RFI, which are acceptable. Additional investigation should also be proposed for AOC1. Section 7.3 (Ground Water) proposes no additional groundwater monitoring wells. However, the furthest down gradient wells (TW-1D, TW-12D, TMW-7D) exceed screening values, so the extent of contaminated groundwater has not been defined. Further delineation of both chlorinated VOC plumes is needed to below MCLs (or the RBC for 1,1,2,2-Tetrachloroethane).
25. Section 7.1.1, Chlorinated VOCs in Downgradient Wells: The absence of a source mass

in the northern parking lot area is not ruled out because the concentrations of chlorinated VOCs reported in groundwater samples are not insignificant. Results from soil samples if obtained at the time of well point sampling, combined with the groundwater VOC results, may have confirmed the absence of a source mass. However, no soil samples were obtained, and the potential source for VOC groundwater contamination in the parking lot area remains unclear.

26. Section 7.1.1, Chlorinated VOCs in Downgradient Wells, and 7.1.2, Chlorinated VOCs in 25th Street Landfill: Details of the estimate of partitioning of chlorinated VOCs to soil and the reduction by biotic and abiotic processes are needed to confirm assertions of the fate of VOCs in downgradient wells. While groundwater is not used presently, the goal for final site disposition is restoration of groundwater to its ultimate beneficial use, which is drinking water. In addition, as noted in comment no. 11, vapor intrusion risk cannot be ruled out by modeling alone.
27. Section 7.1.3, Aromatic VOCs and SVOCs in Upgradient Portion of Site: Assertions that dissolved-phase constituents are undergoing degradation by both biotic and abiotic pathways and the effectiveness of anaerobic mechanisms should be supported. In addition, the possibility of vapor intrusion in the vicinity of this contamination should be examined.
28. Section 7.1.4, Other Potential Sources to Groundwater: Refer to prior comments addressing additional investigation proposed for these areas.
29. Section 7.2.1, Delineation of Constituents Found at Levels Greater than WVDEP ISDMS: In this section it is proposed that soil samples will be sequentially analyzed starting with the shallowest sample. There is no detail in the conceptual site model (section 7.1) which describes the nature of the VOC release (surface vs. subsurface). Therefore, deeper samples should be submitted for analysis if other indicators (elevated PID readings, for example) suggest the presence of VOC contamination.
30. Section 7.3, Groundwater: Temporary wells were used for delineation of the TCE plume in the parking lot area, but there does not appear to be a similar effort conducted in the area of the 25th Street Landfill (AOC1). There is a significant distance between wells TMW-6D and TMW-7D (600') along the down gradient edge of the 25th Street Landfill area that has not been investigated. The soil investigation for the landfill (RFI Phase I) consisted of 4 soil borings to 4' depth in the southern area of the unit. The Phase I RFI recommended no further action for soils for AOC1 and no further investigation was conducted in Phase II. In the Phase II Report, Section 7.1.2 (Chlorinated VOCs in 25th Street Landfill) states (first bullet) that there is no apparent source of the chlorinated VOCs, but the shallow soil investigation conducted in Phase I was not designed to characterize the nature or extent of waste in the unit. Further characterization of AOC1 is needed to determine the volume and chemical characteristics of waste in the landfill, and whether the landfill is an ongoing source to groundwater.

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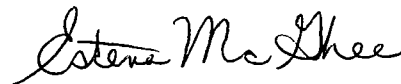
31. Table 1 and Table 5 include WV State Plane NAD83 coordinates for sampling points and monitoring wells. Table 6 includes lat/lon of the monitoring wells. Several coordinates appear to be incorrect, based on plotting in ArgGIS and comparing to figures in the report. For example, using either the coordinates from Tables 1, 5, or 6, TMW-6D plots about 1300 feet southeast of where the well is shown in the report figures. TMW-4S and D plot about 350 feet SSE of where shown in the figures. TMW-2D plots about 410 feet south of where shown in the figures. In Tables 1 and 5, TMW-9D and TMW-11S have identical coordinates, with TMW-11D plotting about 1200 feet NW of where shown in the figures. In Table 6, wells TMW-9D and TMW-11S have different coordinates, but TMW-11S plots about 330 feet SSE of where shown in the figures, and TMW-9D plots about 125 feet east of where shown in the figures. The coordinates from Table 6 for TMW-12D plot about 50 feet south of where the coordinates from Table 5 indicate the well to be. Please correct the coordinate data in the tables, and resurvey if necessary.

32. Tables and Figures: The following errors and inconsistencies were noted:

- The WV screening concentration for ethylbenzene in groundwater is listed incorrectly as 1300 ug/l on Table 2, and in Figure 5.
- Virtually all of the detected 1,1,2,2-tetrachlorethane concentrations listed in Figure 7 exceed the WV screening concentration and should be in bold font.
- The title of Figure 6 states 'total PCBs and metals results,' yet no PCB results appear on this table.
- The title states that 'analytical results' appear on Figure 10, yet no contaminant concentrations are listed in this figure.
- According to laboratory supporting documentation, the July 2009 xylenes results that appear on Table 36 for well nos. 4S and 11S have been transposed.

Please feel free to contact me at 215-814-3433 with any questions concerning EPA comments.

Sincerely,



Estena McGhee, Project Manager
Office of Remediation

cc: Joel Hennessy, 3LC10
Elizabeth Quinn, 3LC10